

TWO NEW GENERA AND SPECIES OF PHLÆOTHIRIPIDÆ
(THYSANOPTERA).By J. DOUGLAS HOOD, *University of Rochester.*

The two new genera described below are unusual in that they are heavily sculptured and have seven-segmented antennæ.

The types are in the author's collection.

Genus **STEGOTHRIPS** nov.

(στέγος, a roof; Θρίψ, a wood-worm—in allusion to the form of the dorsum of the head.)

Body reticulate and tuberculate dorsally, non-shining. Head much longer than wide, very deeply reticulated above; *dorsum strongly elevated and arched* as seen from the side (Pl. 17, fig. 4), *angulate and roof-like when observed from the front; ventral surface concave*; vertex rounded, slightly produced and overhanging, bearing the forwardly-directed median ocellus at its extremity, *without strong setæ; eyes normal in position*, small, rounded, finely-faceted, larger on ventral surface of head, and *strongly protruding*; postocular setæ moderately long and stout, expanded at tip, arising from low tubercles; *antennæ 7-segmented but with a distinct suture on ventral surface* between morphological seventh and eighth segments, intermediate segments short, subglobose, pedicellate, with long sense-cones; mouth-cone heavy but acute, surpassing base of prosternum. *Prothorax short and broad (in the genotype much less than half as long as head)* with a deep transverse groove across middle, this groove with a fovea at either end; pronotum minutely tuberculate, anterior margin curved, *posterior margin straight; epimeron largely fused with pronotum*; all major setæ present, stout, expanded distally, and arising from slight eminences; legs tuberculate, short; female with fore tarsus unarmed on inner surface but *with a strong downwardly-directed claw on outer surface at apex of first segment* (much as in many Urothripidæ); *wings abruptly bent outward at middle* but not narrowed beyond, *fore pair with the basal portion tuberculate*, no accessory setæ. Abdomen with its segments short and transverse, in long-winged forms with a shallow longitudinal groove for the reception of the wings, the major setæ on terga II-VIII (excepting the wing-retaining ones) short, stout, and apically dilated, those on IX much longer; tube long (in the genotype more than three times the length of tergum IX), *thickened at sides*, and constricted at apex, with short terminal setæ.

Genotype.—*Stegothrips barronis* sp. nov.

Stegothrips would appear at first glance to take its proper place in the Tribe Docessissophothripini, instead of in the Phlæothripini where I have assigned it. The type-genus of the former tribe has the occipital region of the head elevated much as in the present genus; in fact, the similarity in this respect between *Docessissophothrips titschacki* Priesner and *Stegothrips barronis* is so close that the conclusion that they are related is almost inescapable.

However, similarly elevated heads are found in such widely different genera as *Megalothrips*, *Phleobiothrips*, and *Trichothrips*; but in the last genus they occur *only in those species whose heads and mouth-spines have become elongated*. The long, crested head has apparently been derived independently in several different portions of the Tubuliferous series as the result of mechanical necessity, so to speak, *this being the only practicable method for increasing the length of the mouth-spines without decreasing the angle of their penetration*. The character seems to be purely an adaptive one and of no phylogenetic significance whatever.

This genus is related to *Strepterothrips* Hood and to the new genus described below, both of which it resembles in such structural features as wing-form, the number of antennal segments, the general build of the abdomen (with its dorsal furrow, in long-winged forms, for the reception of the wings), the long tube, dilated setæ, and dorsal sculpture. The italicized portions of the diagnosis given above should serve, however, to distinguish it readily.

Stegothrips barronis sp. nov.

(Plate 17, Figs. 1-5.)

Female (macropterous).—Length about 1.5 mm. (distended, 1.8 mm.). Color, by *reflected* light, blackish brown in head (black under low magnifications), with median line of head brown behind eyes and about concolorous with remainder of body; pterothorax paler at sides of notal plates, abdomen irregularly paler along sides of terga II-VIII and in segment I, tube brownish orange and tipped with black; subhypodermal pigmentation of two colors, white and red, the former producing a conspicuous white spot where it shows through the membrane between head and pronotum, a small white spot at anterior margin of mesonotum, and a whitish spot, more or less variegated with the red pigmentation and interrupted by tergum I of abdomen, along sides and posterior margin of metanotum; antennæ brown in segment I (apex slightly paler), clear lemon-yellow in II and III, blackish brown in IV-VII; legs blackish brown, paler than head, with distal ends of all femora and proximal ends of all tibiæ yellow, tarsi brownish yellow, with darker brown cups. By *transmitted* light the white markings are not visible; wings pale brown, the fore pair darker in distal half and in anal area ("scale"), with two narrow pale streaks in the bend of the wing, one near each margin; hind wings with a pale median line extending to near tip, in bend margined narrowly with nearly black and with a minute clear spot near posterior margin.

Head (Pl. 17, fig. 1) about 1.77 times as long as greatest width, as broad at basal third as across basal collar and 0.93 as wide at narrowest place between, the cheeks nearly straight and converging to eyes, where they are rather abruptly narrowed and only 0.8 as broad as at widest part; dorsum of head roof-like, very strongly elevated along median line, where it is nearly carinate, much arched as seen from the side (Pl. 17, fig. 4), angulate and almost roof-like when observed

from the front, heavily polygonally reticulate (excepting along the nearly smooth median line) with raised dark lines which in profile (as on the cheeks) appear as tubercles, and with a number of distinct setigerous tubercles which are more numerous and best seen along the cheeks, the smooth median area narrow and bordered on either side with a very regular row of 8-10 slender pointed setæ; postocular setæ strong, dilated at apex, $54\ \mu$ long, arising slightly in advance of posterior margin of eyes, and 1.44 times as far apart as the latter, the measured interval between their bases $101\ \mu$; vertex at a much lower level than highest part of occiput, evenly rounded and slightly overhanging, bearing the forwardly-directed anterior ocellus at its extremity, without strong setæ, but with four pairs of short setæ, one of these directly between posterior ocelli, one almost directly beneath them at sides of vertex close to eyes, one laterad of median ocellus, and one about midway between this last pair and the first mentioned; ocelli about $17\ \mu$ in diameter, the posterior pair $45\ \mu$ apart, the median one $15\ \mu$ in advance of front margin of eyes. *Eyes* normal in position, strongly protruding, but small, little more than one-fifth as long as head, about 1.5 times as long as wide, and nearly two-thirds as wide as their interval. *Antennæ* (Pl. 17, fig. 2) hardly 1.1 times as long as head, segment VIII fused with VII to form a large lanceolate and pedicellate segment which is the longest in the entire antenna and has an incomplete transverse suture on ventral surface; most of the segments roughened by distinct raised lines of sculpture; sense-cones moderately long and slender, segments III, V, and VI each with one on either side of apex, IV with two on either side, morphological seventh segment with the usual dorsal one.

Prothorax (Pl. 17, fig. 1) along median dorsal line of pronotum only 0.33 (!) as long as head and (inclusive of coxæ) three times as broad as long, without median thickening, but with a deep transverse groove across middle, this groove with a large irregular fovea at each end; anterior margin of pronotum emarginate, elevated at median line, posterior margin straight; surface of pronotum and epimeron with numerous small tubercles, the latter sclerite almost completely fused with pronotum; all major setæ present, stout, expanded distally, and arising from distinct eminences, the anterior marginals $30\ \mu$, anterior laterals $36\ \mu$, midlaterals $27\ \mu$, epimerals $54\ \mu$, posterior marginals $37\ \mu$, coxals $30\ \mu$; mesonotum tuberculate like prothorax, metanotum with the tubercles larger and more rounded. *Legs* short and stout, roughened by numerous low anastomosing rugæ and many setigerous tubercles; fore tarsus without tooth or claw on inner surface but with a strong downwardly-directed claw on outer surface at apex of first segment. *Wings* bent abruptly outward at middle (where they are slightly narrower than elsewhere), but not widened distally, the fore pair without vestige of longitudinal vein; basal portion of fore wing tuberculate in the region of the three subbasal setæ, these equal in length ($27\ \mu$ long), stout, flaring outward from base, and arising from low tubercles; distal two-thirds of fore wing roughened; no accessory setæ.

Abdomen broadest at segment II, equal in width to prothorax, with a longitudinal furrow for the reception of the wings, this furrow at sides in each of terga II-VII with two pairs of brown wing-retaining setæ, of which the posterior pair is in every case longer, broader, flatter, and less abruptly curved at extreme base; posterior margins of these same terga each with two pairs only of major

setæ, both of them stout, dilated and divided at apex, arising from tubercles, and pale in color, the inner pair longer and stouter than the outer, on tergum V the inner pair $65\ \mu$ and the outer pair $42\ \mu$; tergum VIII (Pl. 17, fig. 3) with the outer pair $75\ \mu$, stigmata borne on low tubercles; IX (Pl. 17, fig. 3) with the dorsal pair of setæ $135\ \mu$ and knobbed at tip, the upper lateral pair $240\ \mu$ and pointed; tergum I with the middle portion subrectangular and much longer than wide; tube large, two-thirds as long as head, formed and sculptured as shown in Pl. 17, fig. 3, about 2.7 times as long as greatest subbasal width and 2.5 times as broad near base as at apex, its longest terminal setæ $100\ \mu$, its sides thickened; entire dorsum of abdomen in segments II-VIII and basal portion of IX lightly sculptured with anastomosing lines which are weaker in the distal half of the dorsal furrow in each of segments II-V and also in the lateral portions of III-VII at base, prolonged into dark asperæ at sides of segments and also across base of segment II, some of the dark points projecting beyond posterior margins of sides of segments II-VIII and of middle of IX.

Measurements of holotype (♀): Length about 1.51 mm. (distended, 1.82 mm.); head, length 0.307 mm., greatest width (near base) 0.173 mm., width at basal constriction 0.161 mm., least width (at posterior margin of eyes) 0.137 mm., width across eyes 0.158 mm.; eyes, length 0.067 mm., width 0.045 mm., interval 0.070 mm.; prothorax, median length of pronotum 0.103 mm., width (inclusive of coxæ) 0.308 mm.; pterothorax, greatest width 0.313 mm.; abdomen, greatest width 0.312 mm.; tube (length of segment X only) 0.207 mm., width near base 0.077 mm., width at apex 0.031 mm.

Antennal segments:.....	1	2	3	4	5	6	7
Length (μ):.....	35	53	53	51	44	42	58
Width (μ):.....	32	33	31	33	29	25	23
Total length of antenna, 0.336 mm.							

Described from one female taken on Barro Colorado Island, Canal Zone, Panama, 1933 (probably in October), by Silvestre Aviles, from a branch of sour orange [Hood No. 1075]. The specimen was transmitted by Mr. James Zetek.

Genus ARCYOTHRIPS nov.

(ἀρκῦς, a net; ἄρσιψ, a wood-worm—in allusion to the net-like reticulation of the head and pronotum.)

Body reticulate dorsally, non-shining. Head longer than wide, deeply reticulated above; dorsum somewhat elevated and arched as seen from the side; vertex rounded and slightly overhanging, bearing the forwardly-directed median ocellus at its extremity, *without strong setæ*; eyes relatively small, extending onto ventral surface in a forward direction and not at all involving sides of head; *postocular setæ very short*; antennæ 7-segmented, without trace of suture on ventral surface between morphological seventh and eighth segments, intermediate segments short, globose, pedicellate, II particularly large, III much shorter and narrower than either II or IV; mouth-cone acute, attaining base of mesosternum. Prothorax of normal form, reticulated above, with a shallow curved impression across middle and a shallow fovea on each side

between mid-lateral seta and the curved anterior margin, posterior margin curved; epimeron not fused with pronotum; all major setæ present, very short, broadly expanded from base and hence somewhat fan-shaped, all arising from slight eminences; legs short, with minute tubercles, all of which are setose, and anastomosing rugæ; female with fore tarsus unarmed and without a downwardly-directed claw on outer surface at apex of first segment; wings bent abruptly outward at middle, where they are narrowest, and slightly expanded apically, fore pair with the basal portion tuberculate, no accessory setæ. Abdomen with its segments short and transverse, in long-winged forms with a distinct longitudinal groove for the reception of the wings, the major setæ on terga II-VIII (excepting the wing-retaining ones) short, stout, and dilated; tube long (in the genotype more than twice the length of tergum IX), not thickened at sides, narrowed rather than constricted at apex, with terminal setæ about half its length.

Genotype.—*Arcyothrips africanus* sp. nov.

From *Strepterothrips* this genus differs principally in lacking the two pairs of strong and very prominent expanded setæ on the vertex and occiput, and in having the postocular setæ minute.

Arcyothrips africanus sp. nov.

(Plate 18, figs. 1-4.)

Female (macropterous).—Length about 1.3 mm. (distended, 1.6 mm.). Color dark brown with head and tube blackish brown, pterothorax paler along anterior and posterior margins,¹ abdomen slightly paler along median line and distinctly so at base of segment I and in segment IX; head, thorax, and sides of abdomen with bright red subhypodermal pigmentation; legs concolorous with body, slightly paler at bases of femora, apices of tibiæ, and in tarsi; wings pale brown, the fore pair darker at tip and along anterior margin at base, with a short black median vein in bend, beyond the vein with an indistinct pale streak paralleling both margins of wing, pale in about posterior half of basal fourth; hind wings with dark median vein extending to near tip, this vein nearly black just before middle, the membrane of the wing nearly white behind it in about basal fifth and again briefly just before middle where the vein is nearly black, the wing darkest in its full width between these white areas and in distal portion; antennæ nearly blackish brown, segments IV-VII and sides of II darkest, III yellow in pedicel and pale yellowish brown beyond.

Head (Pl., 18 fig. 1) about 1.18 times as long as greatest width, broadest at posterior margin of eyes, the cheeks perfectly straight and converging between

¹ I suspect that in life this species, like all of its close relatives, is marked with white. Such markings are due to the presence in the fat body of an opaque, light-reflecting substance which disappears after a short time in alcohol or other preservatives. If this suspicion is correct, the white will certainly show through the integument along the posterior margin of the metathorax and in the first abdominal segment, and possibly also along the front margin of the mesothorax and in the membrane between the head and prothorax.

this point and one just in front of the slight basal collar, this least width 0.9 the greatest width; dorsum of head somewhat elevated and arched as seen from the side, with heavy dark lines of reticulation which give the cheeks a tuberculated appearance, and with a number of short, stout, pale setæ (many, perhaps all, of them rounded at tip) which arise from tubercles situated frequently in the middle of reticles, the reticles themselves often more or less subdivided by dark incomplete rugæ and decidedly smaller along median line of head; postocular setæ very short (about 13μ) and stout, curved and broadened distally; vertex rounded and slightly overhanging, bearing the forwardly-directed median ocellus at its extremity, without strong setæ but with a number of short curved ones; ocelli about 13μ in diameter, the posterior pair 43μ apart, the median one with its posterior margin on a line with anterior margin of eyes. Eyes small, just one-fourth the length of head, a little longer than wide, and about two-thirds as wide as their interval, composed of relatively few facets, extending onto ventral surface of head in a forward, rather than lateral, direction and thus occupying the front, instead of the sides, of head. *Antennæ* (Pl. 18, fig. 2) about 1.33 times as long as head, segment VIII completely fused with VII to form a large lanceolate and pedicellate segment which is the longest in the entire antenna, no trace of a transverse suture even on ventral surface; segment III particularly small and weak; II especially large, roughened, and with subcircular sensorium elevated; III-VI with prominent transverse lines of sculpture on dorsal surface; sense-cones absent (!) from III, IV with a large one arising on outer surface of apex and extending beneath the succeeding segment and a smaller one arising ventrally on inner surface, V and VI each with a much slenderer cone on each surface and an additional minute one on outer surface, morphological seventh segment with the usual dorsal one.

Prothorax (Pl. 18, fig. 1) along median line of pronotum nearly 0.6 as long as head and (inclusive of coxæ) about 2.3 times as wide as long, without median thickening, but with a shallow curved impression across middle and a shallow fovea on each side between midlateral seta and the roundly emarginate anterior margin, the posterior margin curved; epimeron distinct; surface reticulated like that of head, with numerous short curved pale setæ arising from tubercles, posterior margin with numerous minute non-setigerous tubercles; major setæ all present, very short ($13-20 \mu$), broadly expanded from base and hence somewhat fan-shaped, all arising from slight eminences, epimerals longest (20μ); metanotum and posterior part of mesonotum heavily reticulated like pronotum, the anterior part of mesonotum with asperate anastomosing lines. *Legs* short and stout, roughened by numerous low anastomosing rugæ and setigerous tubercles; fore tarsus unarmed and without a downwardly-directed claw on outer surface at apex of first segment. *Wings* curving posteriorly in basal third, then recurving and continuing in the original direction, this distal portion of wing somewhat more than half the total length of wing and slightly widening to apex; basal third of fore wing closely tuberculate along anterior margin and with four or five widely separated setæ which are similar to anterior marginals, equal to them in length, and which arise from tubercles; recurved portion of wing with a median vein-like thickening, distal portion roughened but scarcely reticulated; no accessory setæ.

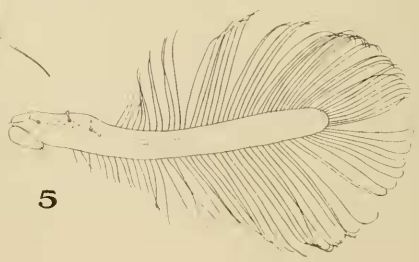
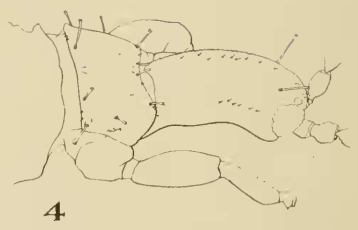
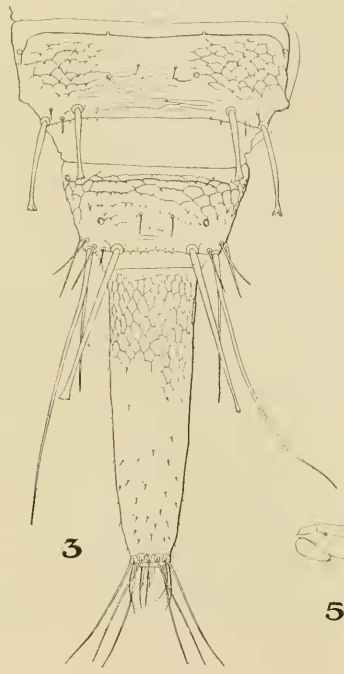
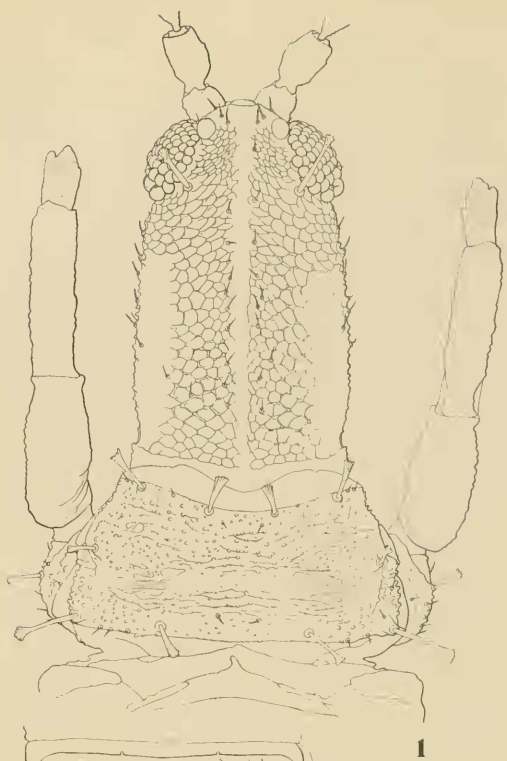
Abdomen broadest at segment III, distinctly wider than either the pterothorax

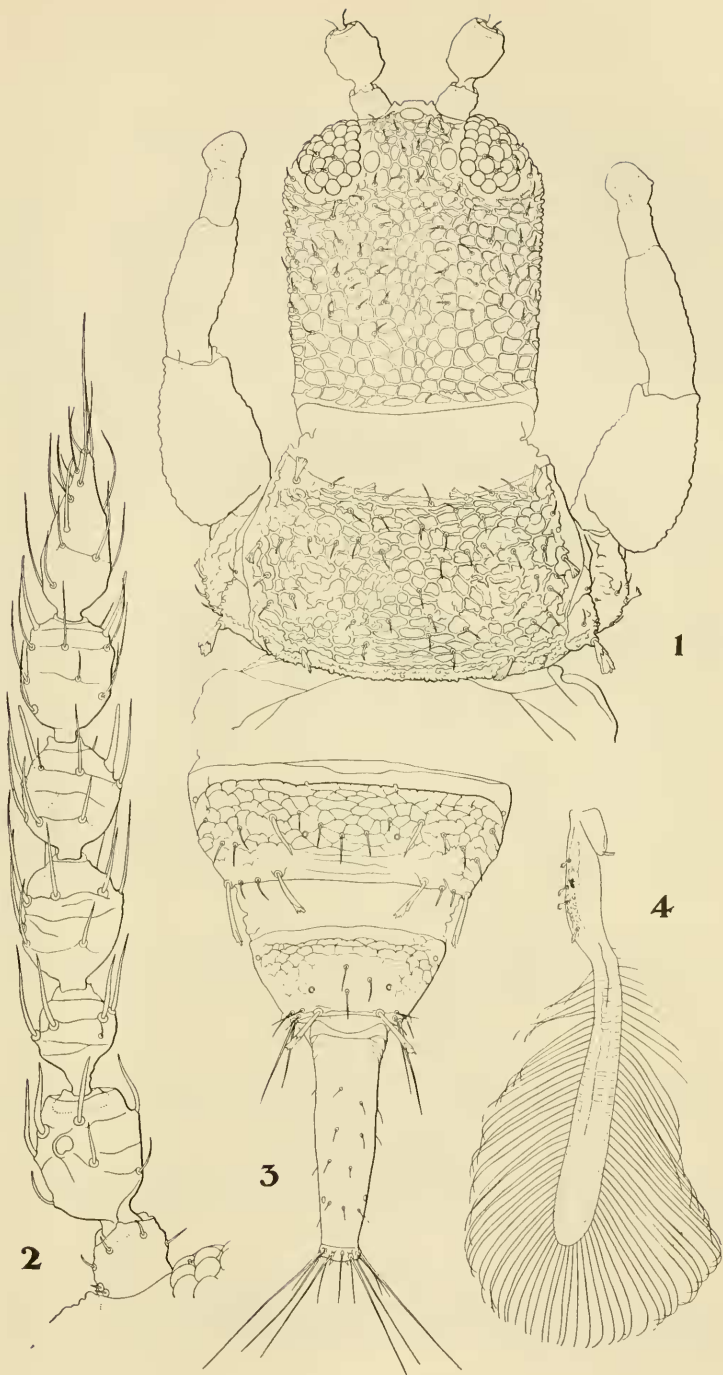
or prothorax, with a longitudinal furrow for the reception of the wings, this furrow at sides in each of terga II-VII with two pairs of conspicuous dark brown wing-retaining setæ, of which the posterior pair is in every case longer, broader, flatter, and more recurved at base; posterior margins of these same terga each with three pairs of major setæ, all of which arise from tubercles and are stout, pale yellow, and divided at apex, the inner pair longest, the middle pair much the shortest and fan-shaped, the outer pair similar to the inner but smaller (on tergum V these setæ measure respectively 50 μ , 20 μ , and 32 μ); tergum VIII (Pl. 18, fig. 3) with these setæ more slender than on VII, the outer pair longer than its homologue on VII, the inner pair shorter than its, the middle pair pointed and with a companion midway between it and outer seta, one pair only of wing-retaining setæ, two pores and five (six normally?) smaller setæ between them (these forming a broad arc), and four pairs of setæ in lateral portions of tergum, the stigmata borne on low tubercles; tergum IX (Pl. 18, fig. 3) with the dorsal pair of major setæ stout and 40 μ long, the others slender and pointed; tergum I much broader than long, trapezoidal, and distinctly polygonally reticulate with dark lines; tube three-fourths as long as head, slender, formed as shown in Pl. 18, fig. 3, and three times as long as greatest subbasal width, its longest terminal setæ 133 μ ; entire dorsum of abdomen in segments I-VIII and in basal portion of IX sculptured with anastomosing lines which are much weaker than those on head and prothorax, but thoroughly distinct even in the dorsal furrow, heavier, more raised and prolonged into dark asperæ at sides of segments, some of these sharp points projecting beyond posterior margins of terga II-VII.

Measurements of holotype (♀): Length about 1.3 mm. (distended, 1.62 mm.); head, length 0.212 mm., greatest width (across eyes) 0.180, least width (near base) 0.163 mm.; eyes, length 0.053 mm., width 0.046 mm., interval 0.071 mm.; prothorax, median length of pronotum 0.126 mm., width (inclusive of coxæ) 0.293 mm.; pterothorax, greatest width 0.307 mm.; abdomen, greatest width 0.323 mm.; tube (length of segment X only) 0.157, width near base 0.053 mm., width at apex 0.025 mm.

Antennal segments:	1	2	3	4	5	6	7
Length (μ):	28?	50	33	40	35	38	57
Width (μ):	25	36	27	33	32	28	23
Total length of antenna, 0.281 mm.							

Described from one female taken at Amani, Tanganyika Territory (East Africa), January 27, 1928, by Dr. C. B. Williams, from a dead branch [Hood No. 460].





EXPLANATION OF PLATES.

(Drawn by Miss Helen E. Rearwin; camera lucida.)

PLATE 17.

Stegothrips barronis gen. et sp. nov.; holotype, ♀.

- Fig. 1. Head and prothorax; all setæ omitted from legs and antennæ; sculpture of posterior part of cheeks not shown.
Fig. 2. Right antenna.
Fig. 3. Abdominal segments VIII-XI.
Fig. 4. Head and prothorax; perspective view (*freehand drawing*).
Fig. 5. Right fore wing.

PLATE 18.

Arcyothrips africanus gen. et sp. nov.; holotype, ♀.

- Fig. 1. Head and prothorax; all setæ omitted from legs and antennæ.
Fig. 2. Right antenna.
Fig. 3. Abdominal segments VIII-XI.
Fig. 4. Left fore wing.

NOTES ON MOSQUITOES FROM SOUTH AMERICA, WITH A
DESCRIPTION OF A NEW SPECIES
(DIPTERA, CULICIDAE).

By ROBERT MATHESON.

In several small collections of mosquitoes made by Dr. J. C. Bradley, Dr. Babiy and Dr. Forbes in various parts of South America I find some interesting records of distribution. In addition I find one quite distinct form not hitherto described.

Aedes albifasciatus Macquart.

Two males from Ancud, Chiloe Island, Chile. One female from Butalcura, Chiloe Island, Chile. April 2-7, 1920.

Aedes fulvus Wied.

One female from El Encanto, Putumayo River, near Peru, Aug. 21, 1920; one female from Iquitos, Peru, Aug. 1, 1920.

Aedeomyia squamipennis L. Arrib.

Putumayo River, Peru, Aug. 7, 1920; Amazon River, near Peru, Aug. 9, 1920.

Culex taeniopus Dyar & Knab.

Two females, Amazon River, near Peru, Aug. 9, 1920; one male, Putumayo River, Peru, Aug. 14, 1920.